

Simplifying complex fractions

Warm-up:

Simplify each complex fraction

1. Simplify: $\frac{\frac{3}{2} + \frac{3}{x}}{2 + \frac{4}{x}}$

2. Simplify: $\frac{\frac{5}{2} + \frac{4}{x}}{1 + \frac{3}{4x}}$

3. Simplify: $\frac{xy^{-1} + 1}{2 + x^{-1}}$

Practice:

Answer all questions on separate paper. Simplify each complex fraction.

$$1. \frac{\frac{4}{7}}{\frac{2}{21}}$$

$$2. \frac{\frac{5}{36}}{\frac{25}{27}}$$

$$3. \frac{\frac{3}{4} - \frac{5}{8}}{\frac{3}{8}}$$

$$4. \frac{\frac{5}{8} - \frac{1}{4}}{\frac{1}{2} + \frac{2}{3}}$$

$$5. \frac{\frac{r}{2} + \frac{s}{3}}{\frac{r}{4} - \frac{s}{8}}$$

$$6. \frac{\frac{3}{x} + \frac{1}{xy}}{\frac{1}{y} - 3}$$

$$7. \frac{\frac{1}{2} - \frac{1}{x}}{3}$$

$$8. \frac{\frac{1}{a} + \frac{2}{b}}{a}$$

$$9. \frac{\frac{7}{3} + \frac{1}{w}}{\frac{2}{w} - \frac{1}{3}}$$

$$10. \frac{\frac{h}{2} + 1}{\frac{2h}{3} + \frac{4}{3}}$$

$$11. \frac{x - \frac{1}{x}}{2 - \frac{2}{x}}$$

$$12. \frac{\frac{a}{b} - \frac{b}{a}}{\frac{2}{b} - \frac{2}{a}}$$

$$13. \frac{\frac{2}{w} - \frac{1}{2z}}{\frac{3}{w} - \frac{1}{3z}}$$

$$14. \frac{\frac{h}{4} + \frac{5h}{6}}{\frac{2g}{3} - \frac{g}{2}}$$

$$15. \frac{x^{-1} + 2}{x + 1}$$

$$16. \frac{y^{-2} + 2}{y^{-1} - 1}$$

$$17. \frac{kz^{-1} + 1}{z^2 + 1}$$

$$18. \frac{x^{-1} + 1}{x^{-1} + 2^{-1}}$$

$$19. \frac{4 - a^{-2}}{2a^{-1} - a^{-2}}$$

$$20. \frac{t^{-1} + 2^{-1}}{3t^{-1} - 3^{-1}}$$

$$21. (x^{-1} + y^{-1})^{-1}$$

$$22. (u^{-2} + v^{-1})^{-2}$$

$$23. \frac{1 - \frac{1}{w+2}}{w-1 - \frac{6}{w-2}}$$

$$24. \frac{\frac{1}{z-1} - \frac{1}{z+2}}{1 + \frac{1}{z^2 + z - 2}}$$

$$25. \frac{4 - \frac{1}{1-t}}{16 + \frac{7}{t^2 - 1}}$$

$$26. \frac{1 - \frac{6}{y^2 + y}}{1 - \frac{8}{y+1} + \frac{10}{y^2 + y}}$$